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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/729,629

12/05/2003

Waleed Khalil

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06/01/2005

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EXAMINER

SHINGLETON, MICHAEL B

ART UNIT

PAPER NUMBER

2817

DATE MAILED: 06/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

8m

Office Action Summary

Application No.

10/729,629

Applicant(s)

KHALIL, WALEED

Examiner

Michael B. Shingleton

Art Unit

2817

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 14-27 is/are allowed.
- 6) ☒ Claim(s) 1, 5, 8, 9 and 12 is/are rejected.
- 7) ☒ Claim(s) 2-4, 6, 7, 10, 11, 13 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 and 8 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Brunn et al. 6,650,195 (Brunn).

Figure 1 and the relevant text of Brunn disclose a voltage-controlled oscillator. Note the frequency control inputs FCP and FCN. Elements 132, 134, 136, 138 and 139 form a tank circuit that is also called a "load circuit" in claims like claim 8. There are two pairs of cross-coupled transistors or "gain devices" 120 and 140 in Brunn. These devices 120 and 140 of Brunn clearly receive the first and second currents respectfully from the tank circuit, as is clearly illustrated in Figure 1 of Brunn. Column 4, around line 59 of Brunn recites that there will be mismatches between these two current sources, i.e. they will have "unequal" values. Having unequal values is all that is required by the claims. Note that the claims do not recite how "unequal" the values are to be. Figure 1 of Brunn also clearly illustrates that the first gain device as being connected to the first current source and the second gain device as being connected to the second current source. Claims like claim 8 recites that the transconductance values are different for the first gain device and the second gain device. Column 3 around line 35 of Brunn clearly recites that it is desirable to have the transconductance of these two gain devices equal but in practicality at best one can only make them "similar". Similar being that the transconductances are close to being equal, i.e. similar, but they are not exactly equal. If the transconductances are not exactly equal then they are unequal which is all that is required by the claims. Note that similar to the current value issue above, the claims just do not recite how unequal the transconductance values are to be. All that is required is that one be larger than the other and even in the case where the transconductances are similar one will be larger than the other. In other words they are similar, i.e. unequal.

Claim Rejections - 35 USC § 103

Art Unit: 2817

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5, 9 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brunn et al. 6,650,195 (Brunn).

The reasoning as applied in the above 35 USC 102 rejection involving Brunn and the following: Claim 9 recites that the transistors are bipolar transistors for the "first gain device". Brunn discloses FETs or MOSFETs for these transistors. However, it is conventionally known that bipolar transistors can form the same basic circuit structure as a FET based transistor structure and the bipolar is an art recognized equivalent to the FET transistor.

Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to have replaced the FET transistors of Brunn with bipolars given the art recognized equivalents of these elements. Note that it would be an obvious consequence of the combination made obvious above that the first gain device would exhibit a phase noise that is substantially proportional to the current.

Claim 5 recites that the cross-coupled pairs of transistors are "manufactured in a SiGe process". SiGe processes are well-known processes to make a transistor that affords higher bandwidths etc. over just Si processes because of the higher electron/hole mobility.

Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to have utilized the SiGe process to make the transistors of Brunn so as to provide for higher bandwidth, etc. that is a result of the higher electron/hole mobility that the SiGe process is well known to have.

Claims 2-4, 6, 7, 10, 11 and 13 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

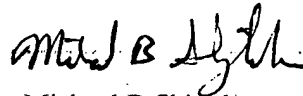
Claims 14-27 are allowable for substantially the same reasons as that of the objected to claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael B. Shingleton whose telephone number is (571) 272-1770.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal, can be reached on (571)272-1769. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MBS
May 13, 2005



Michael B Shingleton
Primary Examiner
Group Art Unit 2817